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Organizational Determinants of Bank Resilience: Explaining the Performance of SME Banks in the Dutch Financial Crisis of the 1920s

By the start of the twentieth century, the two organizational forms most used in Dutch financial services to disperse ownership were the cooperative association and the public company. Share ownership in cooperatives was typically restricted to customers, while companies permitted outside investors. Neither organizational form dictated specific shareholder liability arrangements. New specialist banks targeting SMEs combined these organizational forms and flexible liability rules to create hybrid forms. I find those which took the public company form were more likely to suffer distress during the Dutch financial crisis of the 1920s. Liability arrangements for shareholders, by contrast, had a negligible impact on these banks' resilience.

Keywords: organizational forms, shareholder liability, banking crises, law and finance hypothesis, the Netherlands.

The law and finance hypothesis has suffered sustained assaults from business historians across the past decade. The hypothesis, originally due to financial economists Rafael La Porta and co-authors,¹ has been shown to be largely ahistorical.² The supposedly unique features of American and British corporate capitalism, especially with respect to the flexibility

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¹ La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny (hereafter LLSV), "Legal Determinants of External Finance," *Journal of Finance* 52 (Jul. 1997): 1131–50; LLSV, "Law and Finance," *Journal of Political Economy* 106 (Dec. 1998): 1113–55; La Porta, Lopez-de-Silanes, and Schleifer, "The Economic Consequences of Legal Origins," *Journal of Economic Literature* 46 (June 2008): 285–332.

² See review in Aldo Musacchio, and John D. Turner, "Does the Law and Finance Hypothesis Pass the Test of History?," *Business History* 55 (Mar. 2013): 524–542.

of the laws governing investor protection, have been found: (a) not actually to be unique to Britain and the United States;³ (b) not to originate in Britain and the United States;⁴ and (c) not even to be true in Britain and the United States!⁵ Following the example of Timothy W. Guinnane and co-authors,⁶ business historians have demonstrated that jurisdictions with code law origins developed various organizational forms which were more flexible than, and at least as conducive to, modern capitalism as the archetypal Anglo-Saxon corporation.⁷

The historical law and finance debate has now moved on to look “beyond the law,” to focus on how organizational hierarchies and governance arrangements explain performance. One angle has been to look at the ways in which company articles of association in common law jurisdictions were used to substantially modify governance rules.⁸ Another has been to examine how common law incorporation was used flexibly to create the “hybrid” forms necessary to raise capital while minimizing the impact of principal-agent problems.⁹ And so while many business school scholars still associate business incorporation with “progress,” and

³ Naomi R. Lamoreaux, and Jean-Laurent Rosenthal, “Legal Regime and Contractual Flexibility: A Comparison of Business’s Organizational Choices in France and the United States during the Era of Industrialization,” *American Law and Economics Review* 7 (Mar. 2005): 28–61.

⁴ Leslie Hannah, “The ‘Divorce’ of Ownership from Control from 1900 Onwards: Re-calibrating Imagined Trends,” *Business History* 49 (Jul. 2007): 404–438.

⁵ Eric Hilt, “When did Ownership Separate from Control? Corporate Governance in the Early Nineteenth Century,” *Journal of Economic History* 68 (Sept. 2008): 645–685; Brian Cheffins, and Steven Bank, “Is Berle and Means Really a Myth?,” *Business History Review* 83 (Apr. 2009): 443–474.

⁶ Guinnane, Ron Harris, Lamoreaux, and Rosenthal (hereafter GHLR), “Putting the Corporation in its Place,” *Enterprise & Society* 8 (Sept. 2007): 687–729.

⁷ For example, Susana Martínez-Rodríguez, “Creating the *Sociedad de Responsabilidad Limitada*: The Use of Legal Flexibility in Spanish Company Law, 1869–1953,” *Business History Review* 90 (Aug. 2016): 227–249.

⁸ See, especially, Graeme G. Acheson, Gareth Campbell, and Turner, “Common Law and the Origins of Shareholder Protection,” QUCEH Working Paper Series, Paper No. 2016-04 (Aug. 2016); and Guinnane, Harris, and Lamoreaux, “Contractual Freedom and Corporate Governance in Britain in the Late Nineteenth and early Twentieth Centuries,” *Business History Review* 91 (Aug. 2017): 227–277.

⁹ See Michael Aldous, “Avoiding ‘Negligence and Profusion’: The Ownership and Organization of Anglo-Indian Trading Firms, 1813–1870,” *Enterprise & Society* 14 (Dec. 2016): 752–762, for the combination of corporations and partnerships; and Geoffrey Jones, *Merchants to Multinationals: British Trading Companies in the Nineteenth and Twentieth Centuries* (Oxford, U.K., 2000), for the case of business groups.

still prescribe the blanket adoption of this organizational form, business historians have shown this view to be an oversimplification.¹⁰

A parallel debate on the organizational architecture of corporations focuses specifically on their shareholder liability arrangements. Largely confined to the study of banking organizations, this literature employs historical cases to test economic theory.¹¹ Studies explore two opposing forces:¹² Limiting liability to some *ex ante* fixed amount mobilizes savings from individuals otherwise discouraged from investing by the larger variance in financial success possible under unlimited liability. However, if shareholders have only limited exposure to downside risks, they may elect managers who promise more volatile and risky business. Corporations have in the past used a variety of shareholder liability arrangements, but the pure limited liability case is now regarded as the “end of business history.”¹³ While economic historians have set out to re-examine this feature of corporate capitalism,¹⁴ the fact that other organizational forms in code law jurisdictions could *also* be used limit shareholder liability is not currently the subject of academic scrutiny. And despite the fact that many of the same scholars are involved in both research agendas, there is little attempt to unify the two literatures.

¹⁰ Business scholars have not been universally uncritical of the corporate form: Michael C. Jensen, “Eclipse of the Public Corporation,” *Harvard Business Review* 67 (Sept. 1989): 61–74, famously predicted its demise; and Kathleen M. Kahle, and René M. Stulz, “Is the US Public Corporation in Trouble?,” *Journal of Economic Perspectives* 31 (Summer, 2017): 67–88, found many of his predictions since realized.

¹¹ See review in Turner, *Banking in Crisis: The Rise and Fall of British Banking Stability, 1800 to the Present* (Cambridge, U.K., 2014): 28–32. For similar debate in the context of the 2008 financial crisis, see Raghuram G. Rajan, *Fault Lines: How Hidden Fractures Still Threatened the World Economy* (Princeton, 2010): 162–169.

¹² Key theory references are: Paul Halpern, Michael Trebilcock, and Stuart Turnbull, “An Economic Analysis of Limited Liability in Corporate Law,” *The University of Toronto Law Journal* 30 (Spring, 1980): 117–150; and Susan Woodward, “Limited Liability and the Theory of the Firm,” *Journal of Institutional and Theoretical Economics* 141 (Dec. 1985): 601–611.

¹³ For example, James Brickley, Clifford W. Smith Jr., and Jerold Zimmerman, *Managerial Economics and Organizational Architecture* (6th edn., New York, 2016), relegate other organizational forms and liability regimes to an online-only appendix.

¹⁴ See Benjamin C. Esty, “The Impact of Contingent Liability on Commercial Bank Risk Taking,” *Journal of Financial Economics* 47 (Feb. 1998): 189–218; Acheson, and Turner, “The Impact of Limited Liability on Ownership and Control: Irish Banking, 1877–1914,” *The Economic History Review* 59 (Mar. 2006): 320–346; Richard S. Grossman, and Masami Imai, “Contingent Capital and Bank Risk-Taking among British Banks before the First World War,” *The Economic History Review* 66 (Feb. 2013): 132–155; and Kris J. Mitchener, and Gary Richardson, “Skin in the Game? Risk, Leverage, and the Consequences of New Deal Financial Legislation,” *Explorations in Economic History* 50 (Apr. 2013): 508–525.

As the decisions on organizational form and liability arrangements are likely to be made jointly, I argue these two aspects of business governance must also be studied jointly.

I add to these literatures by analyzing a case from Dutch business history where the advantages and disadvantages of the limited liability public company are revealed as a direct consequence of the occurrence of a financial crisis. The Netherlands is a jurisdiction where the corporation and limited liability were developed very early, in the seventeenth century, to solve contractual problems faced in trade relationships with the Dutch East Indies.¹⁵ The country's legal system was then replaced with the Napoleonic Code Civil; the Netherlands thus constitutes the constituency which the law and finance hypothesis deems to be at a distinct disadvantage. But judging by the legal flexibility available to Dutch business by the turn of the twentieth century, the hypothesis needs to be urgently re-examined. Indeed, Dutch law permitted business organizations to adopt a wide spectrum of arrangements for shareholder liability, ranging on a scale from purely limited to totally unlimited liability. Interestingly, these could be made largely independently of the choice of organizational form; businesses adopting the cooperative form, for example, could *also* limit the liability of their owners. Comparing the resilience of these different types of business organization operating in an “underperforming” code law jurisdiction offers important insights into the relationship between the Netherlands’ institutional environment and these organizations’ governance structures.¹⁶

I choose to examine a class of businesses which GHLR explicitly highlight as being particularly unsuited to the “classic vanilla” corporate form: small- and medium-sized enterprises (SMEs). Indeed, I look at SMEs which are in the business of providing services exclusively to other SMEs: I analyze the fate of the *middenstandsbanken*, a specialized type of bank which emerged in the Netherlands in the first decades of the twentieth century to serve

¹⁵ Giuseppe Dari-Mattiacci, Oscar Gelderblom, Joost Jonker, and Enrico C. Perotti, “The Emergence of the Corporate Form,” *Journal of Law, Economics, & Organization* 33 (May 2017): 193–236.

¹⁶ Oliver E. Williamson, “The New Institutional Economics: Taking Stock, Looking Ahead,” *Journal of Economic Literature* 38 (Sep. 2000): 595–613, terms these “Level 2” and “Level 3” institutions.

the financial needs of the *middenstand*, an antiquated Dutch term for SMEs.¹⁷ These small savings and loans banks, which in 1918 each had on average 230 thousand guilders of capital,¹⁸ suffered severely in the unprecedented financial turmoil of the early 1920s, a period of acute and prolonged debt-deflation. This crisis, which I describe in other work,¹⁹ resulted in the failure of one third of the banks analyzed in this article. While constituting a small component of the Dutch banking sector at the time of the crisis, *middenstandsbanken* represent the principal antecedents of ING Groep NV, one of the world’s largest banks today.²⁰

I use the 1920s shakeout among *middenstandsbanken* to “test” whether the classic vanilla corporation is the optimal form of business organization for banking business in terms of minimizing failure probability, and to isolate whether it was the flexible liability rules rather than the organizational form *per se* which helped or hindered these banks to survive and thrive. Indeed, I argue combining the debate on optimal organizational form with the heretofore always separate discussion on optimal shareholder liability rules in itself represents a novel contribution.

My findings suggest *middenstandsbanken* which failed in the 1920s – manifested either through liquidation or distressed acquisition – were statistically no more likely to have a different arrangement concerning shareholder liability than those which survived the crisis intact. If a failure signifies *ex post* that a bank operated a riskier business model which exposed it more adversely to the 1920s crisis, then this suggests other bank-specific factors – including

¹⁷ The term *middenstand* means more than SME: it describes a societal class. It does not translate directly to English, but the French do have an equivalent concept: *petite bourgeoisie*; see Hugo van Driel, *De Vorming en de Ontwikkeling van de Middenstand in Nederland tot 1940* (Rotterdam, 1984).

¹⁸ One 1918 guilder equalled 0.71 grams of gold, 0.46 USD, or 0.10 GBP (<http://www.historicalstatistics.org/Currencyconverter.html>); and 6.56 2018 euros (<http://www.iisg.nl/hpw/calculate.php>).

¹⁹ Colvin, Abe de Jong, and Philip T. Fliers (hereafter CDF), “Predicting the Past: Understanding the Causes of Bank Distress in the Netherlands in the 1920s,” *Explorations in Economic History* 55 (Jan. 2015): 97–121. For a popular treatment, see Lodewijk Petram, *De Vergeten Bankencrisis* (Amsterdam, 2016).

²⁰ ING was the world’s 18-largest financial services provider in 2012; see “Global 500 Companies,” *Fortune* (23 July 2012). The group has since de-merged into separate banking and insurance firms, but the former remains the Netherlands’ largest bank; see “Data Dispatch: The World’s 100 Largest Banks,” *S&P Global Market Intelligence* (6 April 2018).

the composition of their balance sheet – compensated for the increased risk associated with having less additional capital to call in a crisis.

This result must be read alongside the significantly higher probability of failure experienced by banks which chose the public company form, which could be co-owned by outside investors, rather than the cooperative association form, where the owners were the banks' customers. This finding suggests the identity of a bank's owners determines their resilience. A *middenstandsbank* owned cooperatively by groups of its debtors (i.e., savers) and creditors (i.e., borrowers) was less likely to engage in activities which made it susceptible to fail in a systemic crisis than those owned by stakeholders who stood to lose no more than (some agreed multiple of) their invested capital (i.e., shareholders).

The Law and Finance of the Middenstandsbanken

Middenstandsbanken emerged in the first two decades of the twentieth century in response to a view among many SME business owners that they were being priced out of financial markets.²¹ They took their inspiration from Germany's Schulze-Delitzsch savings and loans banks.²² Their core business model was to act as financial intermediaries between SMEs: to take in excess funds and lend them to finance projects in retailing and small-scale manufacturing, all with little or no collateral. They introduced current accounts, overdrafts and check clearing services to a sector which relied on cash settlement of bills and used late payment as credit. While the specialized nature of their clientele allowed them to design bespoke products and target their marketing, this strategy also rendered them undiversified.

These new SME banks remained insignificant in terms of their aggregate impact on the financing of Dutch business until after the Second World War. But they became important players in their market niche. Table 1 sets out the size of the different components of the

²¹ The argument goes that this was a consequence of the disappearance of local banks following consolidation in the banking sector at the start of the twentieth century; see J. Stoffer, *Het Ontstaan van de NMB: De Geschiedenis van haar Voorgangers in de Jaren 1900 tot 1927* (Amsterdam, 1985).

²² Gerard M. Verrijn Stuart, *Bankpolitiek* (2nd edn., The Hague, 1931). For a description of German case, including the origins of Schulze-Delitzsch banking, see Guinnane, "Delegated Monitors, Large and Small: Germany's Banking System, 1800–1914," *Journal of Economic Literature* 40 (Mar. 2002): 73–124.

financial services sector between 1908 and 1928.²³ The plight of the *middenstandsbanken* is worth studying, despite their small size, because their experimentation with various combinations of organizational forms and liability rules reveals the workings of the law governing business organizations in an important code law jurisdiction. Their initial organizational diversity, and any subsequent learning as a consequence of their heterogeneous performance in the 1920s, describes the evolutionary path of Dutch banking business.²⁴

< Table 1 about here >

No special organizational form or liability regime was earmarked for banks in Dutch law. But two in particular allowed for dispersed ownership: (1) the public company (*naamloze vennootschap*), which derived its attributes from legislation enacted 1838 to replace the Napoleonic Code Civil;²⁵ and (2) the cooperative association (*coöperatieve vereniging*), which was specifically designed for either producer- or consumer-owned organizations and dates to legislation from 1876.²⁶ The liability arrangements prescribed in both laws were only default rules and could be easily amended using the organization's articles of association (*statuten*); liability arrangements from legislation represented merely “starting points” and applied only in the absence of alternatives.²⁷ J. Déking Dura, an economist and lawyer writing

²³ These statistics were collected by the Nederlandsche Bank from annual reports. *Middenstandsbanken* enter Table 1 in 1913, but are represented by just 12 banks – an underestimate the full size of this category.

²⁴ From an evolutionary economics perspective, this article is a case study of what Armen A. Alchian called the “positive profit criterion” necessary for natural selection to work; see Demsetz, “Rationality, Evolution, and Acquisitiveness,” *Economic Enquiry* 34 (July 1996): 484–495.

²⁵ This was included in the *Wetboek van Koophandel* (The Hague, 1838). The corporate governance of public companies is discussed in Abe de Jong, and Ailsa Röell, “Financing and control in the Netherlands,” in *A History of Corporate Governance Around the World*, ed. Randall K. Morck (Chicago, 2005): 467–506.

²⁶ “Wet van den 17den November 1876, tot Regeling der Coöperatieve Vereenigingen,” *Staatsblad van de Koninkrijk der Nederlanden* 227 (Nov. 1876). No legal history exists for Dutch cooperative associations. The partnership form (*commanditaire vennootschap*) also permitted a degree of ownership dispersion and was popular among banks which originated as family firms wishing to bring in “silent partners” with no voting rights. It did not permit liability limitation and was not used by *middenstandsbanken*. See J. Kymmell, *Geschiedenis van de Algemene Banken in Nederland 1860–1914* (vol. Ila, Amsterdam, 1996): 62–65.

²⁷ The default liability arrangement was unlimited for cooperatives, and limited for corporations. Liability arrangements set out in articles of association superseded those from the acts of parliament.

in 1913, goes as far to argue there was no practical difference between cooperatives and corporations in terms of shareholder liability.²⁸ The decision concerning which organizational form to choose was therefore essentially decoupled from the choice of liability regime. Indeed, there was no uniformity in the choice of liability arrangement made by *middenstandsbanken*; bank founders did not all adopt the standard template of rules set out in either the 1838 or 1876 acts of parliament, nor, apparently, did they gravitate towards the same set of bespoke rules. In practice, then, liability ranged from totally unlimited to “pure” limited liability.²⁹

If there was no practical difference between the range of liability options which proceeded from these two organizational forms, how *did* these forms differ? I think they varied in three key respects: (1) share transferability; (2) ownership structure; and (3) management incentive structure. Firstly, with respect to share transferability, cooperative associations always had to maintain “shareholder” (more technically, member) lists, whatever their liability arrangements. Their shareholders could only transfer their shareholdings under certain prescribed instances outlined in their articles of association. Meanwhile, under certain conditions, shareholders in public companies could more easily buy and sell their shares.³⁰

Secondly, the shareholding constituency tended to differ between these organizational forms. For public companies, shareholders could include outsiders investing in the bank purely to make a return. But for cooperative associations, shareholders were typically a constituency which overlapped, sometimes perfectly, with the bank’s customers. This ownership structure rendered their incentives to take risks with deposits to be quite different; cooperative organizations are likely to have pursued more risk averse lending policies.

²⁸ Déking Dura, “Aansprakelijkheid der Leden van Coöperatieve Vereenigingen,” *De Economist* 62 (Mar. 1913): 185–232, advocated founders should avoid the default liability arrangements and instead limit liability to a level which is appropriate to the needs of the organisation.

²⁹ Popular options included: limiting liability only to the original share issue price; extending liability in proportion to the size of shareholders’ loans; and double liability calculated at par. Besides this, banks could opt for partially-paid shares, where the unpaid capital could be called-up under stipulated conditions. *Middenstandsbanken* all treated unpaid capital as an asset, but this was not uncontroversial; see G.M. Greup, *De Stortingverplichting van den Aandeelhouder in een Naamloze Vennootschap* (Utrecht, 1923).

³⁰ Shareholders could do so where a bank’s articles of association had arrangements for bearer shares, which required fully paid-up capital. However, most companies used shareholder lists because they adopted systems of partially-paid capital. Accordingly, the wealth of new shareholders had to be scrutinized.

Thirdly, the incentive structure of bank managers of cooperatives and corporations was likely different as a consequence of legislation. The 1838 law for corporations was quite lenient with respect to the personal responsibility of directors: providing they conducted their business lawfully, they could not be pursued by shareholders for making bad management decisions.³¹ Meanwhile, the 1876 legislation governing cooperatives attempted to align the incentives of directors with those of their organization by making them “super-liable” in the event of failure; directors were considered legally responsible in the case of bankruptcy (article 11 of the 1876 law), and could be fined by the court if their administration was inadequate (article 22). This may have made them less inclined to take risks with their depositors’ savings.

Interestingly, the laws governing both cooperatives and corporations were revised in the wake of the 1920s crisis: in 1925 for cooperatives to force them to enhance transparency surrounding their chosen liability arrangements;³² and in 1928 for corporations to clarify the procedure for share ownership transfers and improve the transparency associated with partially paid-up capital arrangements.³³ These new laws also marked a change in approach by Dutch lawmakers: rather than requiring government approval, new business organizations could instead be set up without such oversight – but on the condition they opened their books to the public.³⁴ The fact that these aspects of the laws were changed, and that considerable legal debate preceded these changes,³⁵ provides very strong circumstantial evidence that contemporary observers considered pre-1920s legal arrangements governing business transparency and

³¹ The law permitted shareholders to pursue directors if a corporation lost 75% of its share capital (article 47 of the 1838 law). However, E.M. Meyers, *Aansprakelijkheid en Décharge van Directeuren van Naamlooze Vennootschappen* (Purmerend, 1923), finds no evidence this provision was ever used.

³² “Wet van den 28sten Mei 1925, houdende Nieuwe Wettelijke Regeling van Coöperatieve Vereenigingen,” *Staatsblad van de Koninkrijk der Nederlanden* 204 (May 1925).

³³ “Wet van den 2den Juli 1928, tot Wijziging en Aanvulling van de bepalingen omtrent de Naamlooze Vennootschap,” *Staatsblad van de Koninkrijk der Nederlanden* 216 (July 1928). For discussion on the new law, see Kees Camfferman, and Bob R.C.J. van den Brand, *Broncommentaren 8: Jaarverslagen van Nederlandse Ondernemingen vanaf 1811 tot 2005* (The Hague, 2010): 25–28.

³⁴ See Gerarda Westerhuis, and de Jong, *Over Geld en Macht: Financiering en Corporate Governance van het Nederlandse Bedrijfsleven* (Amsterdam, 2015): 85–89.

³⁵ Such as Meyers, *Aansprakelijkheid en Décharge* (1923).

shareholder liability to be important determinants of resilience, and, ultimately, convinced policymakers and politicians to revise the country's business law.³⁶

Middenstandsbanken also differed in their religious affiliation. The Netherlands was divided into competing socioreligious pillars, each with parallel social, political and economic institutions.³⁷ The consequence of this “pillarisation” was different *middenstandsbanken* were founded for different social groups living in the same geographic markets. This “banking schism” resulted in a market structure with very low levels of concentration.³⁸ But while pillarization clearly affected the scale and scope of banking organizations, it is not obvious either organizational form or shareholder liability structure were determined by religiosity; any heterogeneity in organizational hierarchies and governance arrangements are difficult to attribute to socioreligious affiliation.³⁹

The Organizational Architecture of the Middenstandsbanken

Probably the best studied of all the *middenstandsbanken* were the Hanzebanken.⁴⁰ On the eve of the 1920s crisis, three *middenstandsbanken* shared the Hanzebank brand – although they were initially linked only by their “ethos” and an agreement not to compete directly with one another. All three Hanzebanken targeted the Catholic market and developed branch networks over their designated diocesan territories. The articles of association of the Hanzebank Den Bosch provide an example of the organizational form and liability structure adopted by

³⁶ In their description of debates which led to the change in the law, Westerhuis, and de Jong, *Over Geld en Macht*, focus on the lack of accounting information available to investors. By contrast, banks had a tradition of publishing their annual accounts. It is these “voluntary” financial accounting data which I make use of.

³⁷ Colvin, “Banking on a Religious Divide: Accounting for the Success of the Netherlands’ Raiffeisen Cooperatives in the Crisis of the 1920s,” *Journal of Economic History* 77 (Sep. 2017): 866–919.

³⁸ Williamson, “The New Institutional Economics,” would term this a consequence of a “Level 1” institution which is embedded in society and is very slow to change.

³⁹ A director of a protestant *middenstandsbank* opined Christian banks pay attention to aspects of their customer “beyond just their business needs;” see Cornelius Bongenaar, “Den Heer Corn. Bongenaar, Directeur der Boaz-Bank te Utrecht, Geïnterviewd,” *Het Middenstandscredietwezen* 2 (Jan. 1926): 25–31.

⁴⁰ P. Dekkers, “Opkomst en ondergang van de Hanzebank te 's-Hertogenbosch, 1908–1923,” *Noordbrabants Historisch Jaarboek* (1992): 44–77.

these banks.⁴¹ It was founded as a cooperative. A number of the articles provided protection for its member-shareholders. The bank's managers were obliged to inform shareholders if share capital had to be written down (article 5). There was no active secondary market in shares, but members could sell their share back to the bank at any time, but never above par (article 11). Quality shareholders were sought: bankrupts could not participate (article 14), only shareholders could borrow money (article 17), and managers could confiscate shares if loan repayment deadlines were missed (article 15). Shareholders were members of the whole bank, collectively liable for all its business, not only that of their local branch.

The Boazbanken were a rival group of *middenstandsbanken* which targeted Protestants. They differed from the Hanzebanken in the way they were organized: member-shareholders were liable for their local bank only, rather than for the whole Boazbank group. A typical example of a Boazbank is that of Sneek, established as a cooperative.⁴² Its liability arrangements were complicated: one share in this bank cost 25 guilders, but shareholders had to pay in just 20 per cent of par value up front. Shareholders had to increase their stake by 5 guilders per year until the full amount was paid in, or immediately in the case of a capital write-down (article 36). A maximum of one share per shareholder was enforced (article 27). Its statutes ensured shareholders remained liable, proportionally, for a further year following the sale of their share (article 44). Shareholders did not enjoy protection from management; shareholder meetings, at which decisions to write-off losses could be made (article 23), required just 14 days' notice, and just one fifth of shareholders was quorum (22). But the fact that managers themselves had to be shareholders ensured some alignment in incentives.

A third group of *middenstandsbanken* was overtly secular, or neutral, not taking any religious affiliation. Such banks were established in most large towns and cities and took a range of organizational forms and liability regimes. Most were linked to the Algemeene

⁴¹ Archief Directie van Handel en Nijverheid (hereafter ADHN), held at the Nationaal Archief, The Hague (hereafter NA), Call Number 2.06.001: 4563. This bank initially had difficulty raising sufficient capital; the share capital goal was lowered from 500,000 guilders to just 10,000 (Dekkers, "Opkomst en Ondergang").

⁴² Historisch Archief De Nederlandsche Bank, Amsterdam (hereafter HADNB), NA, Call Number 2.25.68: 14753.

Centrale Bankvereniging voor den Middenstand (ACBM), established in 1914 to function as a central clearinghouse for the sector and audit the accounts of all member banks.⁴³ The ACBM was itself owned by these member banks, who each had to purchase an equity stake before they could make use of its services.⁴⁴

A typical example of a neutral *middenstandsbank* was that of Leeuwarden, established in 1908 as a cooperative.⁴⁵ Member-shareholders could leave at any time, but they would remain liable for any losses for a further fiscal year (article 5). They were liable for a further 100 guilders above their capital share pledge of 100 guilders (article 9); this bank chose double liability. Shareholders had to pay up at least 50 per cent of their pledged capital (article 33), meaning in reality shareholders could commit just 25 per cent of their total liability up front.

Meanwhile, the neutral *middenstandsbank* in Neede chose the public company form.⁴⁶ But shares in this bank were not “modern” bearer shares; individual shareholders had their name and address recorded in a shareholder register (article 8). Shares could be transferred to others, but this had to take place under the witness of the bank’s directors (article 10). Like cooperatives, individuals who wished to take out a loan with the bank had to become a shareholder (article 5).⁴⁷ Unlike cooperatives, shareholders could own more than one share, but their voting power was capped (article 23). Shares had to be fully paid-up (article 12), and enjoyed limited liability.

In an unlimited liability bank, shareholders could technically lose all their assets if a call was made on them. Who would purchase such a share? Reports lodged with the Nederlandsche Bank, the Netherlands’ *de facto* central bank, concerning this very question with respect to three Boazbanken in 1922 gives some indication.⁴⁸ The professions of these shareholders was

⁴³ ADHN, NA, Call Number 2.06.001: 4569.

⁴⁴ The ACBM took on its own business, servicing the larger SMEs which independent *middenstandsbanken* could not. It operated a small branch network.

⁴⁵ ADHN, NA, Call Number 2.06.001: 4563.

⁴⁶ HADNB, NA, Call Number 2.25.68: 14237.

⁴⁷ Borrowers needed to purchase a 20% paid up share in the *middenstandsbank* in Zeist, a public company. However, this rule was not enforced; A.J. Dengerink, “Een Middenstandscredietbank, Gesticht door de Gezamenlijke Organisaties,” *Het Middenstandscredietwezen* 2 (Jan. 1926): 32–34.

⁴⁸ HADNB, NA, Call Number 2.25.68: 14218 (Barneveld); 14221 (Amersfoort); 14225 (Ter Aar).

surprisingly varied; they including merchants, builders and farmers. Their wealth also varied significantly. For the Boazbank in Ter Aar, the average estimated non-banked assets (property etc.) of the 25 agricultural shareholders was 9,000 guilders, versus 15,550 for all 79 shareholders, and 45,000 for the chief cashier. Meanwhile, the average assets of the 68 shareholders in the Boazbank in Amersfoort was 14,900 guilders, while 24 shareholders had no assets besides their savings deposits. Finally, average assets of the 35 shareholders in the Boazbank Barneveld was 29,300 guilders; none had no assets and the richest shareholder owned 250,000 guilders, placing him among the country's extremely wealthy.

A commission was established to explore changing the organizational architecture of all willing Boazbanken from cooperative associations into public companies.⁴⁹ It concluded in March 1922 that the cooperative form should be maintained because a cooperative bank can just as easily act as a profit-making commercial enterprise and that the company form would bring only disadvantages; the report's authors were of the view that banks would have to raise at least some expensive share capital to replace the pool of unlimited liability "capital," something many of its members could apparently ill afford. Given this case, I hypothesize a bank's choice of organizational architecture was (at least partly) determined by whether it wanted to attract shareholders who could afford to lay down capital, or instead serve those which could not. This would suggest the choice of liability arrangement may be an indicator of the affluence of members, or the global pool of potential bank shareholders sorted itself into groups by their level of liquid assets and chose in which bank to invest accordingly. However, the fact that the Boazbanken counted some very wealthy individuals among their shareholders suggests wealth alone was not the deciding factor.

The 1920s Banking Crisis and its Resolution

Between 1920 and 1926, the Netherlands experienced a protracted financial crisis which affected banks and other financial institutions across the country. Banks suffered depositor runs,

⁴⁹ Drafts of the report are held at Bedrijfshistorisch Archief ING, Amsterdam, Call Number B.002: 327.

share price crashes, illiquid balance sheets and, eventually, insolvencies. The types of bank affected included large general banks, smaller provincial banking houses and specialist banking organizations.⁵⁰ The historiography focuses on the macroeconomic causes of the crisis and holds that it was ultimately a result of banks replacing capital markets during the First World War in order to finance growing industrial demand for Dutch goods and services.⁵¹ Large and sustained declines in aggregate demand and prices in the early 1920s – declines largely due to factors determined abroad, and aggravated by expectations of the Dutch guilder’s return to the gold standard at pre-war parity – put pressure on businesses and, consequently, on the banks which served them. Essentially, the literature argues failing banks were over-exposed to sectors of the economy destined to suffer most at the hands of debt-deflation. Undiversified SMEs were particularly affected, and consequently so were their undiversified *middenstandsbanken*.

While the macroeconomic causes of this crisis are well documented, the microeconomic consequences for different types of banks are not. This is especially the case for the *middenstandsbanken*, which have only really been the subject of one study to date, authored by a retired banker: J. Stoffer’s history of the formation of the Nederlandsche Middenstandsbank (NMB), the bank established in 1927 under the auspices of the Dutch State to subsume those *middenstandsbanken* which had survived the crisis and remained going concerns.⁵² Aside from

⁵⁰ See CDF, “Predicting the Past,” for a description of this crisis focused on the experience of the 142 largest banks. CDF’s econometric analysis suggests banks operating highly-leveraged portfolios, and attracting larger quantities of deposits, suffered most.

⁵¹ Key contributions are: Joost Jonker, “Sinecures or Sinews of Power? Interlocking Directorships and Bank-Industry Relations in the Netherlands, 1910–1940,” *Economic and Social History in the Netherlands* 3 (1991): 119–132; Jonker, “Spoilt for Choice? Banking Concentration and the Structure of the Dutch Banking Market, 1900–1940,” in *The Evolution of Financial Institutions and Markets in Twentieth-Century Europe*, ed. Youssef Cassis, Gerald D. Feldman, and Ulf Olsson (Aldershot, 1995): 187–208; Jonker, and Jan Luiten van Zanden, “Method in the Madness? Banking Crises Between the Wars, an International Comparison,” in *Banking, Currency, and Finance in Europe Between the Wars*, ed. Charles H. Feinstein (Oxford, 1995): 77–93; Jonker, “Between Private Responsibility and Public Duty. The Origins of Bank Monitoring in the Netherlands, 1860–1930,” *Financial History Review* 3 (Oct. 1996): 139–152; and van Zanden, “Old Rules, New Conditions, 1914–1940,” in *A Financial History of the Netherlands*, ed. Marjolein ’t Hart, Jonker, and van Zanden (Cambridge, 1997): 124–151.

⁵² Stoffer, *Het Ontstaan van de NMB*. Additionally, Dekkers, “Opkomst en Ondergang,” and B. Jacobs, and J. van Erp, “Middenstandskrediet, Bankwezen en het Geruchtmakende Faillissement van de Credietvereniging “De Hanzebank” te ’s-Hertogenbosch,” in: *Ius Brabanticum, Ius Commune, Ius Gentium*, ed. E. Broers, B. Jacobs, and R. Laesaffer (Nijmegen, 2006): 33–59, discuss the history of the Hanzebank in Den

an academic debate on the role of *middenstandsbanken* by economists contemporary to the crisis, there is very little scholarly discussion.⁵³ What follows is my attempt to fill this lacuna.

The Nederlandsche Bank, the Dutch State's bank of issue and *de facto* central bank, was inconsistent in its involvement in the financial sector during the 1920s crisis. It was never particularly enthusiastic about rescuing banks. It carried out some lender-of-last resort functions, but only on a case-by-case basis, and in some very exotic ways.⁵⁴ For a modern central bank, its actions would be considered woefully inadequate; the Netherlands' central bank failed to stop bank runs at both large multi-branch banks such as the Rotterdamsche Bankvereniging, and at small *middenstandsbanken* such as the Hanzebanken.⁵⁵ It sought constant government reassurance and support for all its actions; it never acted unilaterally. Overall, then, *middenstandsbanken* could not rely on a bailout, and investors knew this. Any failures in the shakeout of the 1920s were down to "market forces." The government intervention in late 1926, which led to the merger of practically all surviving viable *middenstandsbanken*, does not detract from this fact as it happened only after the crisis was essentially already resolved.⁵⁶ Indeed, the final, politically-motivated, reorganization of the *middenstandsbanken* is consequently not part of the empirical analysis which follows. My focus is the problem of understanding the consequences of the heterogeneity in the sector's various organizational forms and liability arrangements for their resilience *during* the crisis years.

Bosch. A history is also included in W.H. Weenink, *Bankier van de Wereld, Bouwer van Europa: Johan Willem Beyen 1897–1976* (PhD thesis, Universiteit Leiden, 2005), a biography of Willem Beyen, the banker employed to reform the sector by the Dutch government in the wake of the crisis.

⁵³ Contemporary academic debate on the function of *middenstandsbanken* concerned whether there was sufficient demand for their services. See Verrijn Stuart, "Het Middenstandsbankwezen," *Economische-Statistische Berichten* (Dec. 1926): 1101–1103; and William M. Westerman, "Is een Middenstandsbankbedrijf Nodig?," *Economisch-Statistische Berichten* (Apr. 1927): 313–315.

⁵⁴ The Nederlandsche Bank refused to grant *middenstandsbanken* access to its bill discounting business. This was despite lobbying by prominent politicians (ADHN, NA, Call Number 2.06.001: 4569).

⁵⁵ Colvin, "Interlocking Directorates and Conflicts of Interest: The Rotterdamsche Bankvereniging, Müller & Co. and the Dutch Financial Crisis of the 1920s," *Business History* 56 (2014): 314–334. See also CDF, "Predicting the Past."

⁵⁶ The assessment of contemporary bankers reinforces the idea any such merger could only have arisen through government intervention; Bongenaar, "Den Heer Corn. Bongenaar," opined it was unlikely *middenstandsbanken* would themselves find a way to cooperate due to an 'absence of leadership.'

How were failed *middenstandsbanken* wound up in the crisis? Did the method of crisis resolution differ by organizational form or liability regime choice? I examine a series of case studies to provide some clues to a possible answer. I subsequently use this to inform my empirical analysis. The Nederlandsche Bank monitored the failure of the Hanzebanken closely in its capacity as supervisor of the administrators appointed to unwind these banks' portfolios. The central bank long knew the Hanzebanken were in trouble. Reports in June 1923 note how central bankers scrutinized the plans of the Hanzebank in Delft to increase the size of its reserves by offering shareholders the possibility of converting shares into profit participation certificates. The central bank then observed this Hanzebank's directors had made a call on its shareholders to pay in all outstanding share capital by 31 October.⁵⁷

But while they monitored the Hanzebanken, central bankers decided not to intervene. They obtained a list of all the Hanzebank Delft's customers, and conducted a detailed assessment of the financial viability of all its larger customers. The reports note the bank's capital was likely insufficiently large to cover all its obligations, and so must be considered *de facto* bankrupt. But the central bankers were concerned about the possible fallout of declaring the true position of the bank publicly; they were acutely aware of the possibility of instigating a bank run and so apparently did not start legal proceedings until the Hanzebank in Delft's sister bank in Den Bosch collapsed later that year.⁵⁸

The bankruptcy of the Hanzebank in Den Bosch was described in great detail in the contemporary press.⁵⁹ A report written by the bank's bankruptcy administrator, and presented during court proceedings, puts the bank's failure down to the combination of: (1) poor management, or even mismanagement; and (2) the debt-deflationary crisis (*conjunctuurverliezen*). While the first was the consequence of the choices made by financial

⁵⁷ Profit participation certificates were marketed as attractive options for those without the means to pay up their full shareholding (HADNB, NA, Call Number 2.25.68: 13258).

⁵⁸ The Delft bank attempted to distance itself from Den Bosch in a series of communiqués (such as that of June 1923), but were unsuccessful.

⁵⁹ Reports in the local newspaper, the *Meerijdsche Courant* (6 December 1923), were taken up by the national press. Minutes of telephone conversations between central bankers in Amsterdam and their regional branches reveal bank runs at all Hanzebanken (HADNB, NA, Call Number 2.25.68: 13258).

actors themselves, the second is due to factors outside the control of these actors. As examples of the first, the administrator notes the bank paid out a dividend when all its capital was used up in 1920 and 1921, and its managers were contractually guaranteed a good pension in the event of bankruptcy.⁶⁰

Meanwhile, distressed banks which were forcedly merged in the crisis were typically acquired by the ACBM and run as branches. I am able to reconstruct an account of what happened in such cases from archival material concerning the *middenstandsbank* in Terneuzen, organized as a public company.⁶¹ In 1921, it paid an 8 per cent dividend, increasing to 9 per cent on all shares paid in above the minimum – a means of encouraging shareholders to fully pay in their shares. But by the start of 1923 it had called an extraordinary shareholder meeting, at which a visiting director of the ACBM explained his bank would be willing to take over Terneuzen's viable business and guarantee its deposits. The Terneuzen bank had apparently granted very large loans to businesses which had suffered in the deflation, and adopted poor internal accounting practices which made the management of risks very difficult. Shareholders had to pay up their full outstanding shareholding, and then lost ownership rights. They were promised compensation out of any potential future profits of the ACBM.

Modelling Bank Failure

The empirical strategy I employ in the remainder of this article is the analysis of a bankruptcy prediction model. The idea is to see whether, and to what extent, cross-sectional data pertaining to individual *middenstandsbanken* before the 1920s can predict *ex post* crisis-period performance in terms of distress status between 1920 and 1926. My purpose is in some respects quite narrow: to discover whether there is a relationship between crisis-period bank distress and banks' earlier choice of organizational architecture, defined here as the combination of their organizational form and shareholder liability arrangements.

⁶⁰ Depositors did not lose quite everything; 15% of savings were returned to them in December 1927, with further pay-outs late into the 1930s (HADNB, NA, Call Number 2.25.68: 13260).

⁶¹ HADNB, NA, Call Number 2.25.68: 14300. See also *Algemeen Handelsblad* (24 February 1923).

The principal hypothesis on organizational form I test is that the cooperative association was a more appropriate form for SME banking in terms of minimizing financial distress, and ensuring business longevity, as a direct consequence of the fact that their customers were also their owners. Cooperatives lie at the ownership extreme of Henry B. Hansmann's typography of organizational architecture, which, he argues, shapes incentives in ways which discourages risk-taking.⁶² Depositors have less incentive to run on their bank if they co-owned and co-managed it, and similarly borrowers have less incentive to renege on their loan repayments. Meanwhile, the potential separation of ownership from "usership" (customers) in the corporation means the incentives of these two stakeholders are not always aligned, rendering market exit a more expedient route to asset recovery.

The alternative hypotheses regarding shareholder liability which I explore are as follows: (1) the intuition of option pricing suggests banks which limit liability should be riskier, because the negative consequences of poor performance are capped;⁶³ and (2) the intuition of the Coase Theorem suggests a bank's liability choice ultimately has very little bearing on its resilience, because liability risk should be offset by other factors, such as the composition of the balance sheet.⁶⁴ I also explore whether liability functioned in the same way for organizations

⁶² Hansmann, *The Ownership of Enterprise* (Cambridge, M.A., 1996), differentiates two organizational archetypes: those which rely on "market contracting," such as public corporations, where stakeholders (especially customers) deal with the organization only through contracts; and those which rely on "ownership," such as cooperative associations, where stakeholders are also owners of the organization.

⁶³ In option pricing theory, limited liability shareholdings are valued as call options, while extended liability are more like put options; see Esty, "The Impact of Contingent Liability." In the pure limited liability case, shareholders can pay debt and keep the profits, or they can walk away leaving the assets and business of an organization to creditors. Thus, limiting liability may result in a principal-agent problem between shareholders and debt holders (i.e., depositors). Unlimited liability, meanwhile, is like a naked put option in that debt holders have full recourse to a bank's own assets and those of its owners. Unlimited liability theoretically disincentivizes risk-taking because shareholders cannot easily walk away from their business.

⁶⁴ This alternative way to frame the stability implications of different liability regimes is in terms of Stigler's "Coase Theorem"; see George J. Stigler, *The Theory of Price* (3rd edn., New York, 1966), following Ronald H. Coase, "The Problem of Social Cost," *Journal of Law and Economics* 3 (Oct. 1960): 1-44. If bank stability is the *ex post* revelation of *ex ante* bank riskiness, then a "Coasian" interpretation is that in the absence of transactions costs, and if liability obligations are clearly assigned, the market can "price" their effects, thereby rendering the exact liability arrangements irrelevant. In practice, this means the composition of a bank's balance sheet in terms of its assets (loans) and liabilities (deposits) is determined by that bank's earlier liability choice. In a Coasian world, shareholder liability does not matter for realized bank risk as all banks would be "equally risky." See development of this idea in Grossman, and Imai, "Contingent Capital."

at opposite ends of Hansmann's typography of organizational forms, i.e., whether the option pricing approach and the Coase Theorem explain the impact of shareholder liability differently for cooperatives and corporations.

The data I collected in this empirical analysis are a sample of 84 *middenstandsbanken* out of the population of 95 found to operate in the Netherlands in the fiscal year 1917-1918.⁶⁵ This year was selected because the maximum proliferation of this type of bank occurred then, and because it is distant enough from the financial turmoil of the 1920s not to be influenced by it.⁶⁶ This sample includes 62 banks which had chosen to be affiliated with the sector's main apex institution, the ACBM, and 22 which remained unaffiliated. Data concerning seven *middenstandsbanken* were excluded because they merged during non-crisis years, i.e., between 1918 and 1920. My final sample constitutes 77 banks.

In his official history of the Nederlandsche Bank, Johan de Vries lists all banks which exited the market through liquidation or merger during the 1920s crisis.⁶⁷ Of my 77-bank sample, 25 banks are coded as having experienced distress: 14 were rescued through an acquisition,⁶⁸ and 11 were bankrupted and liquidated. Much of the sector was consolidated following the conclusion of the crisis. This "mega-merger" is left out of the present analysis because: (1) it took place outside the crisis period proper, when the economy had recovered and contemporaries no longer considered banking to be in crisis; and (2) it was engineered and financed by the Dutch government for mainly political rather than business reasons. The second point is particularly important for the empirical strategy employed here: the government did not

⁶⁵ The main source of financial data are the annual reports of the ACBM, which collect the balance sheets of affiliated and non-affiliated banks. These were supplemented the annual reports of independent banks. All are available at the International Institute for Social History, Amsterdam.

⁶⁶ Camfferman, and van den Brand, *Broncommentaren* 8, argue prudence and conservatism led to an undervaluation of banks' reported assets. Banks under-stated their profits in good years, like 1917-1918, channelling their resources into secret reserves, which they used to fund dividends in bad years. Despite this issue, published data remain useful because: (1) there was oversight from the ACBM in the collection of these statistics; (2) there is no evidence of systematic mis-evaluation for particular banks; and (3) they represent the information investors and customers used to inform their decisions.

⁶⁷ Johan de Vries, *Geschiedenis van de Nederlandsche Bank: Visserings Tijdvak 1914-1931* (Amsterdam, 1989). See also De Nederlandsche Bank, *Nederlandse Financiële Instellingen*.

⁶⁸ They were bought by the ACBM and operated as branches.

actively intervene to save *middenstandsbanken* until late into 1926, and so any observed distress was resolved by market forces.

I use discrete choice (logistic) models to estimate whether pre-crisis bank-level characteristics can predict crisis-period distress status:

$$\text{Loge} \frac{\pi_i(\text{Distress})}{1 - \pi_i(\text{Distress})} = \alpha + \beta_1 L_i + \beta_2 B_i + \beta_3 O_i + \varepsilon_i \quad (1)$$

where distress is defined as a binominal variable which takes the value of one if a bank has experienced distress during the period 1920 to 1926, and zero otherwise. L_i is a vector of bank-specific variables concerning organizational form and shareholder liability, B_i is a vector of bank-specific variables concerning balance sheet structure, and O_i is a vector of other bank-specific attributes – all derived from data collected for the fiscal year 1917-1918 and defined below. Finally, ε_i is the bank-specific prediction error. I calculate the area under the curve (AUC) of a receiver operating characteristic as a means of assessing my models' predictive ability.⁶⁹

Table 2 defines every variable used in the analysis. *Distress event* is an indicator which describes the fate of banks during the early 1920s and functions as the dependent variable.⁷⁰ *NV* is an indicator which captures the organizational form of the bank; it equals one if the bank is a public company, and zero if it is a cooperative association. *Committed capital* is the portion of total capital (in per cent) which is immediately available and constitutes the sum of paid capital and the reserve, or retained earnings. *Share capital paid* is the portion of total share capital implied by the bank's liability rules (in per cent) which is paid rather than pledged. *Shares sold* is the number of shares in the bank and approximately equals the number of shareholders for cooperative associations. *Total capital* is the face value of total capital (in

⁶⁹ This method compares the sensitivity and specificity of the model. Values of the AUC above 0.5 signify predictive ability better than random. Values between 0.7 and 0.8 are “acceptable”; between 0.8 and 0.9 “excellent”; and between 0.9 and 1 “outstanding.” See David W. Hosmer, and Stanley Lemeshow, *Applied Logistical Regression* (2nd edn., Hoboken, 2000).

⁷⁰ Liquidation and acquisition events are added together because the aim of this analysis is predicting the incidence of distress rather than the way in which distress is resolved.

guilders) available to banks, including any unpaid portion and additional capital defined by the liability rules.⁷¹

< Table 2 about here >

Findings and Implications

Table 3 reports univariate descriptive statistics for the sample of banks, split by banks' fate in the 1920s crisis and by their organizational form. Statistics for the full sample reveal on average these banks were small, but there was large variation: the average total capitalization in the sample was 213,000 guilders, but the standard deviation is 723,000 guilders. There was also significant variation in the portion of capital which was firmly committed: it ranged between zero and 52 per cent. The number of shares (the approximate number of shareholders) ranged between ten and 4,285, while the value of share capital paid per share ranged between zero and 1,473 guilders. On average, banks were leveraged by a factor of 2.5 and could only pay back one guilder out of every 2.80 deposited. Only 10 per cent of banks were interlocked with the ACBM.

Comparing banks which experienced distress in the 1920s with those which did not suggests failed banks were significantly more likely to have adopted the public company form, were significantly more capitalized, and had lent out significantly more. Meanwhile, there was no statistically significant difference in liability arrangements between banks which suffered distress and those which did not. Comparing organizational forms suggests corporations were significantly more likely to have suffered distress, had significantly lower portions of committed capital and paid share capital, were significantly less leveraged and had larger stakes in the ACBM.

⁷¹ I assume the total available capital resources for unlimited liability cooperatives is the total pool of deposits. This is not a heroic assumption as cooperatives are owned and used by the same individuals. The true pool of capital, incorporating personal assets of shareholders, was likely to have been larger – but less liquid.

In addition to these descriptive statistics, I also present differences across the sector graphically in Figures 1 and 2, which locate all *middenstandsbanken* in two-dimensional ownership-liability space. Ownership is proxied here by the percentage of a bank which is owned by a shareholder following the purchase of one share. Liability is proxied by the variable *Committed capital*. Banks which failed and survived in the 1920s are indicated separately in Figure 1; public companies and cooperative associations are indicated separately in Figure 2. Together, these figures reveal a clustering of *middenstandsbanken* which took the public company form, had extended liability regimes which amounted to about 10 and 20 per cent of their capital being paid up by 1918, and failed in the 1920s crisis.

< Tables 3 and 4 about here >

< Figures 1 and 2 about here >

Models (1) and (2) in Table 4 represent the baseline models against which I compare all other models. Model (1) includes only the log transformations of three balance sheet items: *Total capital*, *Total loans*, and *Total deposits*. Larger banks were more likely to experience distress. Model (2) introduces the organizational form indicator variable, *NV*. Public companies were 23 per cent more likely to fail in the crisis. The variable is statistically significant. Its inclusion also causes *Total deposits* to become statistically significant, which suggests the two variables are either directly related or co-determined.

Models (3) and (4) should be read together. Model (3) introduces *Committed capital* to model (2), which measures the sum of all paid capital and the reserve as a percentage of total capital. It is not statistically significant, which suggests the degree of additional liability is not an important predictor of stability. The interaction effect between *NV* and *Committed capital* in model (4) is included to discern whether the additional liability in public companies functions differently to cooperative associations. The model suggests it does not.

As with the previous two models, models (5) and (6) should also be read together. Model (5) introduces *Share capital paid* to model (2), which represents another way of measuring the

additional liability available to the bank – this time as a percentage of the total face value of share capital. The inclusion of the interaction term between *NV* and *Share capital* in model (6) results in this variable becoming statistically significant. This suggests share capital functioned differently for the two organizational forms. However, this inclusion also renders *Total loans* not statistically significant, again suggesting the two variables are either directly related or co-determined.

Models (7) and (8) examine whether *Shares sold*, the number of shares sold by a bank, has any bearing on distress probability. Model (7) suggests this number is directly related or co-determined by *Total capital*. The inclusion of the interaction effect with *NV* in model (8) suggests the number of shares is an important predictor of bank distress, once the separate effect for public companies is controlled for. This implies cooperative associations with greater numbers of liable members were more likely to fail on average. Perhaps a larger ownership base made cooperatives behave more like corporations, or reduced the incentives of any one shareholder-member to monitor the decisions of their bank's directors.

Overall, the results suggest it is the composition of a bank's balance sheet which matters for resilience. Comparing these models also suggests the size and composition of a bank's balance sheet could itself be a function of the organizational form and capital structure; the liability regime influenced failure risk by incentivizing bank managers to run their loans and deposits books in different ways. Indeed, the results imply the choice of the public company organizational form incentivizes banks to take on more loans, which then resulted in a higher probability of failure. The direction of causality is, however, open to debate; it is possible banks' balance sheet structure determines their decisions on capital structure. But given the institutional arrangements discussed earlier, it is more plausible a bank's balance sheet is adapted by bankers (in terms of loans) and their customers (in terms of their deposits) to offset any failure risks associated with the earlier decision on organizational architecture.

Discussion and Conclusion

In this article, I set out to answer how organizational architecture affects the resilience of banks during systemic financial crises. More specifically, I used Dutch business history to explore how: (1) SME banks could create hybrid forms by choosing their own organizational form and liability arrangements; and (2) how these banks then performed during a crisis precipitated, at least partly, by factors outside their control. Performance, measured as realized bank distress status in the period of the 1920s crisis before the government intervened, was hypothesized to be unrelated to the choice of liability arrangement if the increased risk from limiting liability could be anticipated and mitigated. If bank shareholders can freely choose among several different investments, then “the market” (shareholders, depositors, borrowers and other interested stakeholders) pressures managers to behave in ways which offset any systematic difference in risk associated with banks’ liability choice.

The regression analysis suggests this interpretation, which is due to Stigler’s Coase Theorem, is consistent with the history of the Dutch case – and in a way which is inconsistent with ideas about shareholder liability derived from option pricing theory. The results show a bank’s balance sheet structure can directly offset its choice of liability arrangements, rendering all liability types equally risky. Given the historical evidence from the case study banks, it is likely depositors could react more immediately to changing circumstances, while liability regime switching was a costly and lengthy process. This suggests SME business owners initially founded or invested in SME banks with organizational features which best reflected their risk type, but that risk was subsequently offset by how they used their bank.

In addition to this surprising finding with respect to shareholder liability, my results also reveal how banking corporations were on average always more vulnerable than banking cooperatives. This is likely to have been partly due to the different incentives of bank directors resulting from business law; directors of cooperatives were super-liable. This result is also consistent with the idea in Hansmann’s work that the transaction costs associated with recovering the extended portion of shareholder liability from banks founded as public

companies are higher.⁷² Market exit manifested through either liquidation or distressed acquisition was perhaps a more expedient route to asset recovery in the case where there exists a separation of ownership from “usership.”

In an important contribution to business history, GHLR challenge the idea that the corporation is always the superior organizational form for business enterprise.⁷³ They do so by carefully examining the use of the public company form. They find: (1) French code law countries were more flexible to the needs of businesses than American and British common law ones; and (2) where possible, entrepreneurs switched away from the public company to other hybrid forms. They conclude the corporation has significant disadvantages which make other forms more appropriate in most contexts. My research adds another dimension to their argument: in a legal regime where bespoke liability rules can be adopted – indeed, a legal regime which is based entirely on code law – it is possible cooperative associations rather than public companies were more conducive to business longevity in some financial services. For the specific case of banks targeted at SMEs, putting customers rather than owners in charge results in better outcomes.

One of the central tenets of the law and finance hypothesis is common law is uniquely conducive to corporate capitalism thanks to its flexibility.⁷⁴ In a new comparison of the history of business law in Britain and the United States, Harris and Lamoreaux argue investors are better served by laws which offer them flexibility to solve their contracting problems.⁷⁵ They find the two common law jurisdiction did not have much in common: British law was more flexible than that of the United States. Considering my research, I think Dutch code law was at least as flexible as British common law. Scholars should therefore focus specifically on how business law is interpreted, whatever the legal origin.

⁷² Hansmann, *The Ownership of Enterprise*.

⁷³ GHLR, “Putting the Corporation in its Place.”

⁷⁴ LLSV, “Law and Finance.”

⁷⁵ Lamoreaux and Harris, “Opening the Black Box of the Common-Law Legal Regime: Contrasts in the Development of Corporate Law in Britain and the United States in the Late Nineteenth and Early Twentieth Centuries,” *Business History* (forthcoming).

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Table 1
Total assets of Dutch financial institutions, 1908–1928

Type	1908		1913		1918		1923		1928	
	fl	%	fl	%	fl	%	fl	%	fl	%
Nederlandsche Bank	331.8	17.0	363.4	14.5	1,221.2	21.3	1,151.9	16.8	961.4	12.3
Commercial banks	810.1	41.4	1,110.5	44.3	2,949.1	51.5	3,353.6	49.0	4,190.8	53.4
<i>Big Five</i>	<i>321.6</i>	<i>16.4</i>	<i>525.8</i>	<i>21.0</i>	<i>1,455.3</i>	<i>25.4</i>	<i>1,502.6</i>	<i>22.0</i>	<i>1,644.2</i>	<i>21.0</i>
<i>Middenstandsbanken</i>	-	-	<i>0.1</i>	<i>0.0</i>	<i>29.4</i>	<i>0.5</i>	<i>56.3</i>	<i>0.8</i>	<i>34.8</i>	<i>0.4</i>
Savings banks	110.1	5.6	147.5	5.9	185.4	3.2	274.2	4.0	395.7	5.0
Rijkspostspaarbank	158.3	8.1	203.2	8.1	270.8	4.7	349.4	5.1	427.5	5.5
Raiffeisen banks	20.4	1.0	53.5	2.1	228.0	4.0	357.7	5.2	507.0	6.5
Mortgage banks	526.8	26.9	630.6	25.1	773.9	13.5	890.8	13.0	1,160.3	14.8
Giro services	-	-	-	-	100.6	1.8	467.9	6.8	199.3	2.5
Total	1,957.5	100.0	2,508.7	100.0	5,729.0	100.0	6,845.5	100.0	7,842.0	100.0

Source: Adapted from De Nederlandsche Bank, *Nederlandse Financiële Instellingen in de Twintigste Eeuw: Balansteeksen en Naamlijst van Handelsbanken* (Amsterdam, 2000).

Notes: Expressed in millions of guilders. 12 *middenstandsbanken* are included as part of the commercial banks category. Listed separately (*in italics*) are also the Big Five banks (Ambank, Incasso-Bank, Nederlandsche Handel Maatschappij, Robaver and Twentsche Bank), which today constitute ABN AMRO Bank; and these 12 *middenstandsbanken*, which, together with the Rijkspostspaarbank, today constitute ING Bank.

Table 2
Definitions of all variables used in regression analysis

Variable	Definition
Dependent variable:	
<i>Distress event</i> (indicator)	Equals 1 only if bank in distress in period 1920–1926
Organizational architecture:	
<i>NV</i> (indicator)	Equals 1 if bank is a public company; equals 0 if bank is a cooperative association
<i>Committed capital</i> (% of total capital)	Sum of paid capital and reserve as a percentage of total capital
<i>Share capital paid</i> (% of par value)	Share capital paid as a percentage of the total pledged par value of a share
<i>Shares sold</i> (number)	Number of shares in the bank sold to shareholders/members
<i>Share capital paid per share</i> (guilders)	Average book value of the paid portion of each share
Other attributes:	
<i>Interlocked with ACBM</i> (indicator)	Equals 1 only if a bank's director is a member of the board of the ACBM
<i>Ownership of ACBM</i> (% of total)	Bank's ownership in the ACBM as a percentage of the total ownership
<i>Age</i> (years, in 1918)	Age of bank in 1918
Balance sheet structure:	
<i>Total capital</i> (1,000s of guilders)	Sum of reserve, pledged capital, and any additional capital as defined by liability rules
<i>Total loans</i> (1,000s of guilders)	Total value of all loans
<i>Total deposits</i> (1,000 of guilders)	Total value of all deposits
<i>Leverage ratio</i>	Ratio of core assets (loans) to total capital
<i>Deposits ratio</i>	Ratio of core liabilities (deposits) to total capital

Table 3
Summary statistics for all variables used in regression analysis for full sample, by distress status and by organizational form, 1918

Variable	Full sample (n = 77)		Full sample, by distress status (n = 77)					Full sample, by organisational form (n = 77)				
			Distressed banks (n = 25)		Non-distressed banks (n = 52)		Diff. in means	Public companies (n = 37)		Coop. associations (n = 40)		Diff. in means
	Mean	St. dev.	Mean	St. dev.	Mean	St. dev.		Mean	St. dev.	Mean	St. dev.	
<i>Distress event</i> (indicator)	0.33	0.47	1	0	0	0	1.00***	0.46	0.51	0.20	0.41	0.26**
<i>NV</i> (indicator)	0.48	0.50	0.68	0.48	0.39	0.49	0.29**	1	0	0	0	1.00***
<i>Committed capital</i> (% of total capital)	19.97	15.41	22.01	14.97	19.03	15.66	2.98	16.34	7.75	23.25	19.48	-6.91**
<i>Share capital paid</i> (% of total liability)	19.09	15.10	21.09	14.67	18.11	15.36	2.98	15.68	7.59	22.06	19.04	-6.38**
<i>Shares sold</i> (number)	186.20	528.60	362.80	899.50	99.76	90.72	263.04	175.20	289.40	195.80	675.60	-20.60
<i>Share capital paid per share</i> (guilders)	105.70	183.80	108.60	90.16	104.20	216.30	4.40	95.91	91.84	114.20	237.80	-18.29
<i>Interlocked with ACBM</i> (indicator)	0.10	0.31	0.16	0.37	0.08	0.27	0.08	0.14	0.35	0.08	0.27	0.06
<i>Ownership of ACBM</i> (% of total)	0.73	2.03	1.34	3.25	0.43	0.95	0.91	1.29	2.75	0.20	0.67	1.09**
<i>Age</i> (years)	4.56	2.53	4.92	2.66	4.39	2.47	0.53	3.24	1.72	5.78	2.56	-2.54***
<i>Total capital</i> (1,000s of guilders)	213.28	723.37	454.37	1,234	97.37	145.48	357.00	209.98	655.12	216.33	789.62	-6.35
<i>Total loans</i> (1,000s of guilders)	337.15	1,027	722.64	1,719	151.83	271.36	570.80	438.03	1,280	243.85	723.28	194.18
<i>Total deposits</i> (1,000 of guilders)	583.67	2,631	1,440	4,531	172.12	346.46	1,267.88	876.43	3,635	312.86	1065	563.56
<i>Leverage ratio</i>	2.45	2.84	2.45	1.38	2.45	3.34	0.00	1.85	0.75	3.01	3.82	-1.16*
<i>Deposits ratio</i>	2.80	3.26	2.41	2.20	2.99	3.66	-0.58	2.25	1.99	3.31	4.06	-1.06

Source: Author's calculations in Stata using annual reports of all available *middenstandsbanken* for the 1918 fiscal year.

Notes: Where appropriate, values of 0 were replaced with 0.1 in order to enable logarithmic transformation. Significance in difference in means calculated using two-tailed t-test following Levene's test for equality of variances (Howard Levene, "Robust Tests for Equality of Variances," in *Contributions to Probability and Statistics: Essays in Honor of Harold Hotelling*, ed. Ingram Olkin (Stanford, 1960): 278–292); significance levels indicated as follows: *** = $p < 0.01$, ** = $p < 0.05$, * = $p < 0.1$.

Table 4
Logistic regressions of bank distress, marginal effects estimated from odds-ratios at the means

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>NV</i> (indicator)		0.225** (2.364)	0.244** (2.425)	0.677*** (3.299)	0.273** (2.468)	0.764*** (4.250)	0.236** (2.142)	0.993*** (46.595)	0.217** (2.232)	0.358*** (3.259)
<i>Committed capital</i> (% of total capital)			0.002 (0.493)	0.009 (1.449)						
<i>NV</i> * <i>Committed capital</i> (interaction, %)				-0.025 (-0.188)						
<i>Share capital paid</i> (% of book value)					0.003 (0.493)	0.011* (1.676)				
<i>NV</i> * <i>Share capital paid</i> (interaction, %)						-0.035 (-0.190)				
<i>Shares sold</i> (log)							0.130 (1.283)	0.378** (2.269)		
<i>NV</i> * <i>Shares sold</i> (log)								-0.376 (-0.124)		
<i>Interlocked with ACBM</i> (indicator)									-0.064 (-0.442)	
<i>Ownership of ACBM</i> (% of total)									0.010 (0.516)	

Continued.

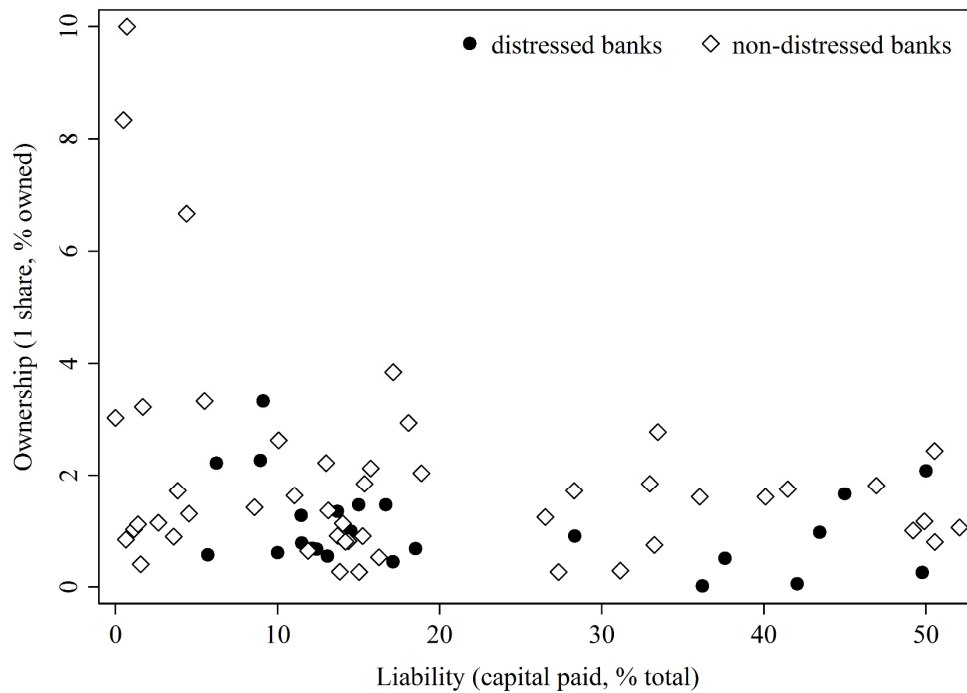
Table 4
Continued

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Age</i> (years, in 1918)										0.089 (1.139)
<i>Age squared</i> (years squared, in 1918)										-0.004 (-0.576)
<i>Total capital</i> (log)	-0.065 (-1.059)	-0.081 (-1.350)	-0.064 (-0.866)	0.006 (0.066)	-0.067 (-0.767)	0.026 (0.267)	-0.128* (-1.840)	-0.158* (-1.930)	-0.083 (-1.377)	-0.088 (-1.219)
<i>Total loans</i> (log)	0.232*** (3.026)	0.231*** (3.255)	0.203** (2.520)	0.134 (1.398)	0.231** (2.246)	0.136 (1.178)	0.219** (2.345)	0.237*** (2.641)	0.233*** (3.159)	0.215*** (2.822)
<i>Total deposits</i> (log)	-0.078 (-1.568)	-0.072** (-1.979)	-0.070* (-1.734)	-0.037 (-0.806)	-0.083* (-1.674)	-0.039 (-0.743)	-0.088* (-1.870)	-0.083** (-2.287)	-0.066* (-1.783)	-0.072* (-1.704)
Observations	77	77	76	76	73	73	73	73	77	77
Number of distressed banks	25	25	24	24	24	24	24	24	25	25
Pseudo R-squared	0.128	0.182	0.172	0.223	0.172	0.240	0.186	0.254	0.185	0.213
AUC	0.737	0.778	0.776	0.708	0.776	0.816	0.781	0.832	0.786	0.800

Source: Author's calculations in Stata using annual reports of all available *middenstandsbanken* for the 1918 fiscal year.

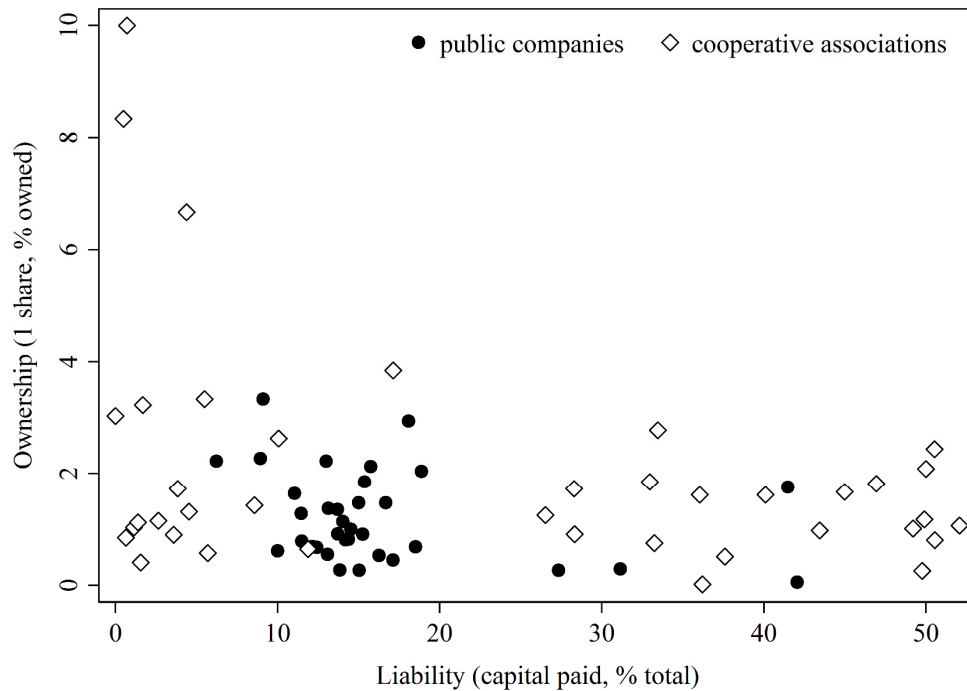
Notes: The dependent variable is a binomial variable equals 1 only if a bank has gone into distress during the period 1920-1926; marginal effects are calculated at the means for continuous variables, and for a discrete change from 0 to 1 for indicator variables; robust z-statistics reported in parentheses, except for interaction terms, where the mean z-statistic is calculated using the procedure outlined in Edward C. Norton, Hua Wang, and Chunrong Ai, "Computing Interaction Effects and Standard Errors in Logit and Probit Models," *The Stata Journal* 4 (Apr. 2004): 154–167; significance levels indicated as follows: *** p<0.01, ** p<0.05, * p<0.1.

Figure 1
Ownership, liability and distress status



Notes: Figure locates all 77 *middenstandsbanken* in two-dimensional ownership-liability space. Ownership proxied by % of bank owned with purchase of a single share. Liability proxied by *Committed capital* (see definition in Table 2). Banks which were distressed and non-distressed in the 1920s are indicated separately.

Figure 2
Ownership, liability and organizational form



Notes: As Figure 1, but with banks which were public companies and cooperative associations indicated separately.